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ABSTRACT

The use of hypothetical case studies in research on decision-making is examined with particular concern for validity and reliability issues. A validation procedure is suggested and the procedure is used to demonstrate that the proposed protocols yield acceptable measurement characteristics for use in decision-making research in education. Twenty-seven sentences concerning characteristics of hearing-impaired children were rated by 40 parents, teachers, and administrators in terms of the favorability of each statement with regard to mainstreaming. Results indicated: (1) the three groups perceived the favorability of each sentence in the predicted manner (high, moderate, or low); (2) the three groups ranked the items in essentially the same order; and (3) the perceptions of the 27 sentences tended to be homogeneous across the groups. The use of the instrument in future hypothetical case study research in decision-making was therefore generally supported. (Author/CL)

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PERCEPTIONS OF INFORMATION REGARDING MAINSTREAMING OF HEARING-IMPAIRED CHILDREN: A PRELIMINARY VALIDITY STUDY

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ABSTRACT

PERCEPTIONS OF INFORMATION REGARDING MAINSTREAMING OF HEARING-IMPAIRED CHILDREN: A PRELIMINARY VALIDITY STUDY

The use of hypothetical case studies in research on decision-making is examined with particular concern for validity and reliability issues. A validation procedure is suggested and the procedure is used to demonstrate that the proposed protocols yield acceptable measurement characteristics for use in decision-making research in education.

Twenty-seven sentences concerning characteristics of hearing-impaired children were rated by parents, teachers, and administrators. The favorability of each statement with regard to "mainstreaming" was evaluated by the subjects (n=40). Results indicate:

1. the three groups perceived the favorability of each sentence in the predicted manner (high, moderate, or low).
2. the three groups ranked the items in essentially the same order.
3. the perceptions of the 27 sentences tended to be homogeneous across the groups.

The use of this instrument in future hypothetical case study research in decision-making is, therefore, generally supported.

Perceptions of Information Regarding Mainstreaming Hearing Impaired Children: A Preliminary Validity Study

The importance of decision-making has long been acknowledged by students of management theory. Bernard (1938, p. 186) stated that "acts of decision are characteristic of organizational behavior." In 1969, Griffith (p. 15) wrote that "The special function of administration is to develop and regulate the decision-making process in the most effective manner possible." And Knezevich (1975) included "deciding-resolving" as one of the 16 major functions of administration.

Decisions can be arranged and studied by type and classification. Different types of decisions may require different decision-making strategies, i.e., different models of information use (Dusseldorp, Richardson, & Foley, 1971). Theorists have proposed various models of decision-making both to promote understanding of the decision-making process (descriptive models) and to serve as guidelines for better decision-making (normative models) (Anderson & Shanteau, 1977). Normative theories have an orientation toward action and are generally used in data dependent decisions involving money and time. Descriptive models, on the other hand, are generally used to study decision tasks related to subjective judgment and aim at providing information about how people actually make decisions.

The dependence of normative theories upon data has typically required limiting consideration to only a few issues or decisions at a time. The complexity of many social issues defies ready analysis using these theories. Starr, when president of The

Institute of Management Science, stated that "a growing number of management scientists accept the notion that fuzzy, wicked, messy problems cannot be saved for breakthroughs in methodology which may never materialize" (Zeleny, 1975, p.xxiv). And Rice, past-president of the same organization, noted that "The objectives of many programs in the public sector--education, welfare, and housing, to name a few--are much more difficult to identify and to specify in terms that make it possible for the application of traditional analytical methods to help the decision-maker" (Zeleny, 1975, p.xxiv.)

This dissatisfaction with normative models has led to an increased interest in descriptive decision-making theories. Of the nine decision types listed in a taxonomy of educational administration decisions (Shufflebeam, Foley, Gephart, Guba, Hammond, Merriman, & Provus, 1971), only three--allocations, order, and locale--are predominately data-based decisions. The other six decision catagories--ends, means, agents, functions, norms, and affirmation--rely more on critical evaluation and judgment than on data analysis and projection. While the descriptive decision models may be of more assistance in representing these judgment processes, the research on such models within the field of education is limited, therefore the applicability of the models has not been fully established.

Research on the decision-making process based on descriptive theories has frequently employed hypothetical events, profiles, or descriptors as part of measurement protocols. Researchers have used these to observe and record decision-making behaviors. For

example, Anderson (1965) used adjectives to evoke "likeableness" judgments. Anderson (1973) asked students to evaluate the statesmanship of presidents of the United States after reading short paragraphs of descriptive information. Shavelson, Cadwell, and Izu (1977) presented graduate education students with case studies containing positive/negative and reliable/unreliable information about students in investigating information use in decision-making. Borko and Cadwell (1982) used profiles of hypothetical children and asked teachers to make judgments about the ability and motivation of each student.

The use of "true-to-life" situations in the study of information utilization in decision-making brings the issues of reliability and validity to the forefront. With the exceptions of the adjective-based research of Anderson (1965) and the within-subject validation studies reported by Anderson and Alexander (1971), reports of validity and reliability checks are not widely available within this area of inquiry. Without such assurances, the results of studies on decision-making may not be accurately interpreted. The present study suggests a validation procedure and demonstrates that the proposed protocols for use in education decision-making studies have acceptable measurement characteristics.

Design of the Study

The hypothetical student profiles (to be used in research on the use of information in decision-making by administrators, teachers, and parents) simulate the placement phase of an Individual Educational Program (IEP) conference. The critical

issues rotate around responses to information which has high, moderate, and/or low favorability with regard to mainstreaming hearing-impaired children into a regular 5th grade class.

Twenty-seven sentences were developed. Each sentence reflects one favorability condition--high (H), moderate (M), or low (L)--for each of nine student characteristics. The nine student characteristics have been identified in the literature as primary factors in the educational placement of hearing impaired children. The nine characteristics are:

reading achievement (RA)	
mental ability (MA)	cognitive factors
teacher recommendation (TR)	
language maturity (LM)	
oral communication (OC)	communication factors
hearing use (HU)	
emotional maturity (EM)	
work habits (WH)	maturational factors
age (AGE)	

Thus, one sentence is designed to reflect high reading achievement (HRA), one sentence moderate reading achievement (MRA), one sentence low reading achievement (LRA), one sentence high mental ability (HMA), and so on through the list of student characteristics.

These 27 sentences may then be used in compiling student profiles of mixed levels of favorability and of mixed orders of presentation. The present study is designed to confirm whether or not:

1) Information designed to be highly favorable is, in fact, generally perceived as highly favorable by the target populations; and that the same stipulations prove to be

true for information with moderate or low favorability;

2) The three groups of interest (administrators, teachers, and parents) respond to the favorability of the target sentences in a similar manner.

Specifically, the study addressed three research questions. First, are the 27 stimuli items rated in favorability in the anticipated manner? Second, ignoring the ratings of the 27 items, do the 40 individuals tend to rank the 27 items in the same order? Third, are the three subject groups homogeneous in their perceptions of the 27 items?

Method

Subjects in the Validity Study

Forty volunteers--administrators (n=13), teachers (n=21) and parents (n=6)--from the New Orleans, La. and Tulsa, Ok. areas participated in the validation of the profile sentences. All subjects are familiar with the education of hearing-impaired children within their respective roles, i.e., the parents have a hearing-impaired child enrolled in special education, the teachers are certified and currently employed as teachers of the hearing-impaired, and the administrators are in supervisory positions and authorized to sign the IEP's of hearing-impaired children for their school system.

Instrumentation

Each of the 27 sentences was placed on an individual sheet of paper along with an unnumbered line labeled UNFAVORABLE at the

left end and FAVORABLE at the right end. The 27 sheets of paper were placed in random order and stapled to form test booklets. Subjects were instructed to place a slash mark along the line to indicate the favorability of each sentence as it relates to mainstreaming a hearing-impaired child in the 5th grade. One unrelated example was given in the instructions. Figure 1 illustrates the form of all pages within each test booklet. The test instruction and 27 sentences are found in Appendix A and Appendix B.

Figure 1

Sample Test Booklet Page

Michael's reading comprehension grade level is currently 4.8.

UNFAVORABLE _____FAVORABLE

Procedure

Test booklets were distributed either by a third person or by mail. No oral directions were given. Test booklets were returned by mail. Once returned, tests were scored by placing an acetate scoring grid over each marked test item. The grid was divided into 15 segments of 1/4" each and numbered 1-15 left to right.

Results

The study's first research question asked if the 27 stimuli items are rated in favorability in the anticipated manner. Specifically, are the statements which were designed to reflect information of either high, moderate, or low favorability

generally perceived as such? The group means and the total mean for each statement confirm the favorability category of each sentence (see Table 1) as the means of "high" statements tend to fall into the upper third of the 15 point scale, "moderate" into the middle third, and "low" into the bottom third.

The data were then transposed (variables became data matrix rows; people became columns) to support analysis regarding the study's second and third research questions. Prior to discussing

Table 1

Means and Standard Deviations for Individual Sentences

Stimulus	Administrators	Teachers	Parents	Total
1 HRA	13.7692 (1.0919)	12.2381 (2.1887)	12.0000 (2.4494)	12.7000 (2.0406)
2 HNA	13.0000 (2.2730)	12.6190 (1.8296)	12.0000 (1.8973)	12.6500 (3.0428)
3 HTR	14.2307 (1.2351)	13.8571 (1.1952)	13.0000 (2.0976)	13.8500 (1.3876)
4 HLN	13.6153 (1.5021)	12.0000 (3.1937)	12.5000 (2.8869)	12.6000 (2.7437)
5 HOC	13.8461 (1.5191)	13.3809 (2.0365)	13.3333 (1.6329)	13.5250 (1.7972)
6 HHU	14.0000 (1.3540)	12.5238 (2.3794)	12.0000 (3.0331)	12.9250 (2.2914)
7 HEN	13.0769 (1.4978)	12.9047 (1.7579)	13.1666 (1.4719)	13.0000 (1.6012)
8 HHN	13.3076 (2.0568)	12.6666 (2.0575)	12.0000 (2.0000)	12.7750 (2.0442)
9 HASE	12.0769 (2.6913)	9.8095 (4.1426)	10.0000 (4.6904)	10.5750 (3.8689)
10 MRA	9.6153 (2.3992)	9.6666 (3.4544)	11.0000 (2.9664)	9.8500 (3.0428)
11 MNA	10.3076 (2.6263)	10.0000 (3.3466)	9.6666 (2.8751)	10.0500 (2.9953)
12 MTR	6.3846 (2.2560)	8.0000 (3.1937)	6.6666 (3.0767)	7.2750 (2.9350)
13 MLN	6.4615 (2.9893)	5.0952 (3.1449)	8.8333 (3.7638)	6.1000 (3.3725)
14 MOC	10.4615 (2.6017)	8.2381 (3.5341)	4.5000 (2.3452)	8.4000 (3.6005)
15 MHU	11.0000 (2.5495)	11.5238 (2.8039)	10.3333 (2.0655)	11.1750 (2.6006)
16 MEN	5.7692 (1.8776)	7.5714 (3.7359)	5.5000 (3.8340)	6.6750 (3.3234)
17 MHN	5.0769 (1.7541)	7.5714 (3.9188)	4.0000 (1.0954)	6.2250 (3.3396)
18 MASE	7.7692 (3.5135)	7.3333 (3.6514)	8.5000 (3.0822)	7.6500 (3.4681)
19 LRA	6.0769 (1.7059)	5.2857 (3.7435)	5.1666 (3.6560)	5.5250 (3.1540)
20 LNA	3.3076 (2.2130)	4.9047 (2.9984)	3.8333 (3.3116)	4.2250 (2.8418)
21 LTR	1.6923 (1.1094)	2.9523 (2.8013)	1.3333 (0.5164)	2.3000 (2.2211)
22 LLN	3.2307 (1.7867)	4.2381 (3.1289)	4.0000 (4.0496)	3.8750 (2.8839)
23 LOC	4.8461 (2.1543)	5.5714 (3.9060)	3.6666 (2.9155)	5.0500 (3.2021)
24 LHU	1.8461 (1.3445)	4.3809 (2.8544)	2.0000 (2.0000)	3.2000 (2.6135)
25 LEN	3.8461 (1.9513)	4.6666 (3.3960)	2.8333 (1.4719)	4.1250 (2.7936)
26 LHN	3.2307 (1.3008)	5.0476 (2.8013)	3.1666 (1.7224)	4.1750 (2.4060)
27 LASE	3.2307 (2.2786)	3.9047 (2.5000)	3.6666 (3.3862)	3.6500 (2.5272)

Note: Standard Deviations are in parentheses

these analyses, it should be noted that the transposition allows the calculation of an "intra-individual mean rating" for the 27 items as a set. The mean of these intra-individual means was 8.30 (SD=1.05, skewness=.96). Since the scale was scored using 15 units, these values suggest that the 40 subjects centered their ratings near the scale midpoint and tended to use most of the scale. The methodological implication is that the scales seemed to work well from a technical viewpoint. These findings also have implications regarding item validity. The 27 items were intended to represent a range of information favorability varying from low to high and centered at medium. Thus, these results confirm that as a set the 27 items were centered near a conceptual midpoint of favorability in the minds of the 40 subjects.

The study's second research question asked, ignoring the ratings of the 27 items, do the 40 individuals tend to rank the 27 items in the same order? This question was investigated by computing Spearman Rho correlation coefficients among all possible pairs of the 40 subjects. The number of unique pairs equals [n x (n-1)]/2, or in this case, 780 [(40 x 39)/2]. The median coefficient was .74. The mean was .70 (SD=.16).

The third research question asked, are the three subject groups homogeneous in their perceptions of the 27 items? This question was addressed by conducting a Q-technique factor analysis using the transposed raw data matrix. Four factors with eigenvalues greater than 1.0 were extracted. After 11 iterations the solutions converged. The eigenvalues for the first factor

(28.67) indicated that one factor accounted for the vast preponderance of variance among the 40 subjects. Furthermore, after rotation to the varimax criterion, only six subjects had factor structure coefficients on the first factor less than .4. Only 10 subjects had coefficients less than .5.

Discussion

The study's first research question asked, are the 27 stimuli items rated in favorability in the anticipated manner? As indicated by the Table 1 results, the three subject groups tended to react similarly to the 27 items. Furthermore, as a group the 40 subjects tended to rate the items as expected, e.g., highly favorable items tended to be rated most favorably, and so forth.

The study's second question asked, ignoring the ratings of the 27 items, do the 40 individuals tend to rank the 27 items in the same order? The median interrater reliability of rankings of .74 is good and indicates that the rankings of the subjects are similar.

The third research question asked if the three subject groups are homogeneous in their perceptions of the 27 items. The factor analytic findings suggest that all or most of the subjects grouped together to form the first factor. The result indicates rather dramatically that the perceptions of the 27 stimuli items tended to be homogeneous across groups.

Results of the validity study confirm that the 27 sentences are generally perceived in a similar manner by parents, teachers,

and administrators. In addition, the favorability designation (high, moderate, or low) is appropriate for each sentence in the study. Therefore, there are assurances that the use of these 27 sentences in the development of hypothetical profiles will permit accurate analysis of data gathered in the planned study of information use in decision-making.

This procedure for validation of component parts of hypothetical case studies was effective in both form and substance. The instrument did not require complex direction; little time was required to complete the test (approximately 5 minutes); and scoring was objective. The results of the analysis are, in this instance, clear cut, and generally support use of the instrument in future research.

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Appendix A

Instructions

The following sentences relate to a hearing-impaired child who is hypothetically being considered for academic mainstreaming in the fifth grade. Read each sentence and indicate how favorable or unfavorable you consider each piece of information to be. Treat each sentence as a separate piece of information relating to a different child (even though the name "Michael" has been used as a hypothetical name).

Example

Michael is 4 feet tall.

UNFAVORABLE _____/_____FAVORABLE

This person felt that this piece of information was moderately unfavorable as regards the probable success of mainstreaming.

PLEASE COMPLETE ONE SHEET AT A TIME AND DO NOT TURN FORWARD OR BACKWARD IN THE BOOKLET.

Appendix B

Test sentences in the order presented

Michael's teacher states that Michael is a competent and capable student in all academic areas. (HTR)*

Michael's teacher states that Michael has difficulty with all academic work. (LTR)

Michael scored at the 2.5 grade level on two language assessment tests. (LLM)

Michael is a good lipreader, and has technically correct articulation but deaf vocal quality which makes him somewhat difficult to understand when he communicates information that is unfamiliar to the listener. (MOC)

Michael is organized and goal directed. (HWH)

Michael uses his residual hearing to some extent and usually wears amplification. (MHU)

Michael's reading comprehension grade level is currently 4.8. (HRA)

Michael is somewhat shy and needs reassurance until surroundings are familiar. (MEM)

Michael does not use his residual hearing and seldom wears amplification. (LHU)

Michael is 12 years old. (MAGE)

Michael makes optimum use of his residual hearing and always wears amplification. (HHU)

Michael doesn't think through to the consequences of his behavior and is easily over-stimulated. (LEM)

Michael scored at a 3.5 grade level on two language assessment tests. (MLM)

Michael's teacher states that he does well in some academic subjects and has trouble with others. (MTR)

Psychological evaluation indicates that Michael's mental ability is "average". (MMA)

Michael has difficulty getting down to work. (LWH)

*Identification codes (in parentheses) were not included in the test booklets.

Michael is outgoing and self-confident and he feels "at home" in most situations. (HEM)

Michael is 14 years old. (LABE)

Michael is 10 years old. (HABE)

Michael is a fair lipreader, and has poor articulation and deaf vocal quality which makes him difficult to understand in most situations. (LDC)

Psychological evaluation indicates that Michael's mental ability is "low average". (LMA)

Michael is a good lipreader and has correct articulation and natural vocal quality which makes him easy to understand. (HDC)

Michael's reading comprehension grade level is 4.0. (MRA)

Michael scored within grade level (4.5) on two language assessment tests. (HLM)

Michael needs supervision and encouragement in order to work well. (MWH)

Psychological evaluation indicates that Michael's mental ability is "above average". (HMA)

Michael's reading comprehension grade level is 3.2. (LRA)